REMARKS/ARGUMENTS

Claims 2-13 and 16-22 remain pending in the application. Claims 23-26 have been canceled subject to the restriction requirement. Claims 2, 3, 7, 11, and 20-22 have been amended. The amended claims are generally drawn to the nucleotide sequence of SEQ ID NO:1, sequences having 95% sequence identity to SEQ ID NO:1, nucleotide sequences encoding the amino acid sequence of SEQ ID NO:2, and sequences encoding an amino acid sequence having 95% sequence identity to SEQ ID NO:2. Support for the amendments can be found throughout the specification, particularly pages 3-9 as well as the original claims. No new matter has been added by amendment. It is believed that the amendments address the Examiner's concerns and place the claims in condition for allowance. The amendments do, at least, reduce the issues for appeal. Entry of the amendments is respectfully requested. Reexamination and reconsideration of the claims are respectfully requested in view of the amendments and the following remarks.

The rejection of the claims under 35 USC §112, first paragraph, should be withdrawn

Claims 2-13 and 16-22 remain rejected under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and use the invention. This rejection is respectfully traversed.

The Examiner concludes that the specification does not exemplify invertase sequences with at least 80% sequence identity to SEQ ID NO:1 or sequences which hybridize "under low or moderate stringency thereto" and to evaluate their ability to encode a protein with invertase inhibitor activity or to modulate invertase activity. While Applicants believe that the previously pending claims were enabled by the specification, the claims have been amended to further prosecution. Applicants reserve the right to pursue the canceled subject matter in a continuing application.

As noted above, the amended claims are generally drawn to the nucleotide sequence of SEQ ID NO:1, sequences having 95% sequence identity to SEQ ID NO:1, nucleotide sequences encoding the amino acid sequence of SEQ ID NO:2, and sequences encoding an amino acid sequence having 95% sequence identity to SEQ ID NO:2.

The amended claims are fully enabled by the specification. In support, Applicants provide herewith Table 1 which shows a comparison of the amino acid sequences of SEQ ID NO: 2, 4, and 26 (identified in Table 1 as ZM-INVINH1, ZM-INVINH2, and ZM-INVINH3, respectively) with other invertase inhibitor-like proteins. This analysis clearly shows that these molecules have extensive homology to known invertase inhibitors. The homology information provided in the Table, provides guidance on how SEQ ID NO: 1 or SEQ ID NO:2 may be modified and retain invertase activity.

Applicants further note that the standard for experimentation as it relates to the enablement requirement of 35 U.S.C. §112, first paragraph, is not whether experimentation occurs *at all*, but rather whether such experimentation, even when extensive, is *undue*. The Federal Circuit has repeatedly stated that enablement is not precluded by the necessity for experimentation, as long as the experimentation needed to practice the invention is not *undue*. *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed Cir. 1988).

With regard to the amount of experimentation required to prepare and characterize non-exemplified invertase inhibitor sequences encoding a protein with invertase inhibitor activity, Applicants submit that, in light of the Table submitted herewith demonstrating the homology of invertase inhibitors and the *routine* nature of the methods disclosed in the specification for constructing such molecules, the amount of experimentation required is not undue.

The specification discloses SEQ ID NO:1 and a variety of ways of generating sequences having at least 95% sequence identity to this invertase inhibitor, as well as assays for routinely determining the functionality of such molecules. See, e.g., the specification, page 9, lines 13-14. Furthermore, the Table provided herewith indicated residues that may be modified without changing the activity of the encoded protein. Having disclosed SEQ ID NO:1, one of skill in the art can readily construct sequences that have 95% sequence identity to SEQ ID NO:1 or sequences that encode an amino acid sequence having 95% sequence identity to SEQ ID NO:2.

In view of the above, it is respectfully requested that the rejection under 35 USC § 112, first paragraph, not be applied to the amended claims.

It is believed that the present claims are in condition for allowance. Early notice to this effect is solicited. If in the opinion of the Examiner a telephone conference would expedite prosecution, the Examiner is invited to call the undersigned.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on September 9, 2003

Polly P. Burton

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